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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,558	01/21/2004	Levinus Pieter Bakker	081468-0307685	8651
909	7590	06/10/2005	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP			NGUYEN, HUNG	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	
			2851	

DATE MAILED: 06/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/760,558

Applicant(s)

BAKKER, LEVINUS PIETER

Examiner

Hung Henry V. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 23-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17-22 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☒ Claim(s) 1-25 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of group I (claims 1-22) in the reply filed on April 4, 2005 is acknowledged. The traversal is on the ground(s) that "the search and examination of the entire application can be made without a serious burden". This is not found persuasive because invention I is explicitly to the structure of an optical element as well as corresponding lithographic apparatus and method. Whereas, Invention II is drawn to a device manufacturing method for selectively filtering out the undesired radiation. The fact that the search of group I and the search of group II might be overlapped does not mean that the burden on the Examiner is minimal. In this case, the examination of both inventions and additional searches (for non-elected group) are quite extensive and place a serious burden on the Examiner.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-7, 10-15, 17-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaminsky et al (US 2004/0233526 A1).

With respect to claims 1-2, 10, and 18-19, Kaminsky et al discloses an optical element and corresponding method, comprising all basic features of the instant claims including a substrate having at least one surface on which a layer of material is disposed (see abstract), the layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength λ (see section [0017], [0075]), wherein the layer of material includes particle having a diameter in a range of 1-500 nm (see abstract) and the layer of material has a layer thickness in the range of 10-2000nm (see section [0068], line 3).

As to claim 3, Kaminsky et al discloses the particles include a material having a complex refractive index "close to" unity at the predetermined wavelength (see sections [0074], [0123]).

Regarding claim 4, Kaminsky et al teaches the particle comprise a material selected from at least one of the materials as recited in the instant claim (see sections [0069]).

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As to claims 5, and 20-21, Kaminsky et al suggests the optical element is an element selected from optical fibers, optical gratings, mirrors, and lenses (for example, see section [0002]).

With respect to claims 6-7, 11-15, Kaminsky et al teaches the layer of material comprises protrusions that form cavities and elevations within the layer of material and the Ra (roughness average) of surface is in the range of 3-200 micrometers and the surface of features have an average aspect ratio of 0.1 to 7.0 (see section [0024]). Kaminsky et al further suggests that the surface features on the optical element are discrete individual optical elements of well defined shape (see section [0047]) and the optical element comprises spacer (see section [0096]).

4. Claims 1-3, 5 and 18-21 are rejected under U.S.C. 102(e) as being anticipated by Ishizawa et al (U.S.Pat. 6,870,602).

With respect to claims 1-2, and 18-19, Ishizawa et al discloses an optical element and corresponding method, comprising all basic features of the instant claims including a substrate having at least one surface on which a layer of material is disposed (see abstract; col.6, lines 42-65), the layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength λ (193 nm), wherein the particle diameter is extremely fine and about 10nm (see col.8, line 67) and the thickness of the layer of material is about 37.5 nm (see col.16, lines 27)

As to claim 3, Ishizawa et al discloses the particles include a material having a complex refractive index "close to" unity at the predetermined wavelength (see col.7, lines 16-19).

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As to claims 5, and 20-21, Ishizawa et al suggests the optical element is an element selected from optical fibers, optical gratings, mirrors, and lenses (see abstract).

As to claim 22, Ishizawa teaches a lithographic projection apparatus comprising a radiation system, a support structure for supporting a patterning device and a substrate table for supporting a substrate (see figure 1).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8-9, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaminsky et al (US 2004/0233526 A1).

With respect to 8-9, Kaminsky et al discloses an optical element comprising substantially all of the limitations of the instant claims, including the average roughness of the surface structures is in the range of 3-200 micrometers. Kaminsky et al further, suggests that “more preferably, the surface features have an Ra of less than 100 micrometers for decreased weight and cost of the optical element” (see section [0023]). Kaminsky does not expressly disclose the period of the protrusions being in the range of 200-5000 nm and the height difference is in the range of 10-500 nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select the period of the protrusions and the height of protrusions, as recited in the instant claims, for at least the purpose of reducing the optical body's surface

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roughness and amount of internal light scattering, which can deleteriously raise the surface and bulk haze of the optical body. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As to claim 22, Kaminsky et al does not expressly disclose the optical element being used in a lithographic projection apparatus which has inherent elements such as “a radiation system”, “a support structure for supporting a patterning device”, “a substrate table”. Kaminsky et al, however, suggests that it is useful to control the flow and intensity of light for optical lenses, Fresnel lenses, optical light fibers (see section [0002]). It is the Examiner’s position it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the optical element as suggested by Kaminsky, into a lithographic projection apparatus for the purpose of increasing the transmission of desired radiations whereby quality of the images is greatly improved.

Allowable Subject Matter

7. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record, either alone or in combination, neither discloses nor makes obvious the

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combination of an optical element where the thickness of the layer of material satisfies condition as recited in the instant claim of the present invention.

Prior Art Made of Record

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamaoka et al (US 2005/0117217 A1) discloses polarization plate with optical compensation layer; Simpson et al (U.S.Pat. 6,859,310) discloses system and method for filtering electromagnetic and visual transmissions, each of which comprises substantially all elements as recited in the instant claims of the present invention.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V. Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

hvn
6/2/05

A handwritten signature in black ink, appearing to read 'Henry Hung Nguyen', with a long horizontal flourish extending to the right.

**HENRY HUNG NGUYEN
PRIMARY EXAMINER**